Earth Science

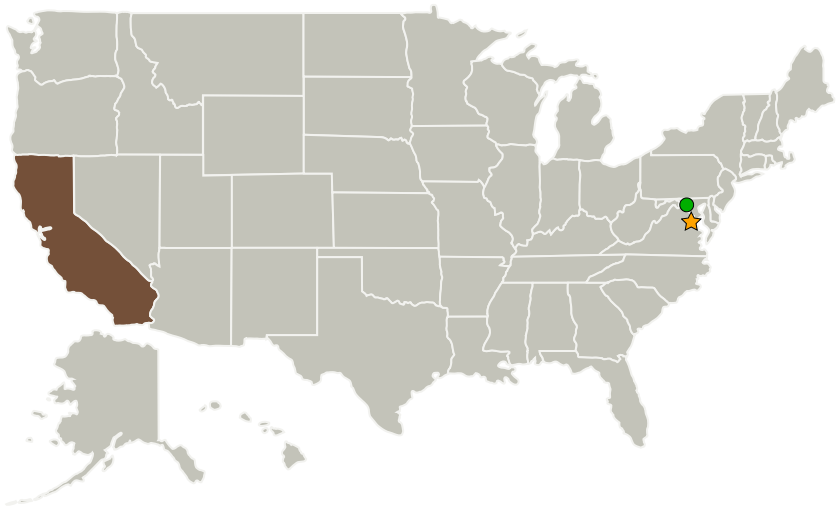
Hyperspectral TIR Camera for Geostationary Earth Observation

Completed Technology Project (2014 - 2015)

Project Introduction

Determine feasibility and risk attributes of a compact thermal-infrared (TIR) imaging spectrometer for persistent monitoring of outgoing longwave radiation (OLR) emitted by the Earth for enhanced measurements of: radiative/climate impacts of urbanization/urban heat islands, anthropogenic pollution, carbon flux produced by wildfires, and precursor signatures of volcanic and tectonic activity. Performance goals: ≤0.1 K noise-equivalent ?T across the 7-14 ?m band; ~55-nm spectral resolution; 0.28-mrad pixel FOV; SWaP compatible with a smallsat or hosted payload at GEO. Candidate technologies include high-throughput spectrometer; high-performance TIR focal plane array; and low-power microelectronics.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★NASA Headquarters(HQ)	Lead Organization	NASA Center	Washington, District of Columbia
●Goddard Space Flight Center(GSFC)	Supporting Organization	NASA Center	Greenbelt, Maryland
The Aerospace Corporation	Supporting Organization	Industry	El Segundo, California

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Organizational Responsibility

Responsible Mission Directorate:

Science Mission Directorate (SMD)

Lead Center / Facility:

NASA Headquarters (HQ)

Responsible Program:

Earth Science

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Primary U.S. Work Locations

California

Project Management

Program Director:

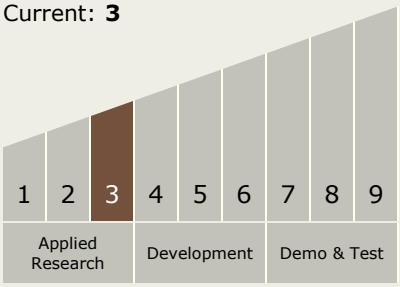
George J Komar

Principal Investigator:

David M Tratt

Technology Maturity (TRL)

Start: **3**
Current: **3**



Technology Areas

Primary:

- TX08 Sensors and Instruments
  - TX08.1 Remote Sensing Instruments/Sensors
    - TX08.1.1 Detectors and Focal Planes

Target Destination

Earth